Model Credibility Planning Resources for the IMAG and MSM Community

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With the rapidly growing need to employ computational modeling and simulation (M&S) to enable precision medicine and personalized healthcare [1-2], demand has grown for processes and procedures to support credible use of M&S in healthcare and biomedical research [3-5]. The Interagency Modeling and Analysis Group (IMAG) and the Multiscale Modeling (MSM) Consortium established the Committee on Credible Practice of Modeling & Simulation in Healthcare (the Committee) to help meet this demand through four initiatives: (1) developing and adapting guidelines and procedures for credible practice of M&S in healthcare, (2) cultivating consistent terminology, (3) demonstrating workflows for credible practice, and (4) promoting credible practice [6]. Since its establishment in 2013, the Committee has primarily focused on the first initiative by developing "The Ten Simple Rules of Credible Practice of M&S in Healthcare" (Table 1) [7]. These rules were derived via synthesis of the Committee's expertise in this domain, and by surveying the the global stakeholder community to ensure a balanced representation of interests and perspectives concerning credible practice of M&S in healthcare [8-9]. This presentation provides guidance to the IMAG, MSM, and broader research community on how to develop strategies that maximally employ The Ten Simple Rules of Credible Practice of M&S in Healthcare specified by the Committee. These rules, along with the interactive forum provided by the Committee [10], are anticipated to facilitate the effective development and execution of appropriate M&S activities to establish credibility plans. Prospective IMAG U01 awardees are encouraged to attend this presentation and exchange ideas with the Committee for guidance on developing and implementing model credibility plans for their IMAG U01 funding opportunity [11].

Table 1: The Committee's "Ten Simple Rules of Credible Practice of M&S in Healthcare" [7-9].

Rule 1	Define context clearly	Rule 6	Document adequately
Rule 2	Use appropriate data	Rule 7	Disseminate broadly
Rule 3	Evaluate within context	Rule 8	Get independent reviews
Rule 4	List limitations explicitly	Rule 9	Test competing implementations
Rule 5	Use version control	Rule 10	Conform to standards

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